

## SHORT COMMUNICATION

### COMPOSITIONAL ANALYSIS AND ANTIOXIDANT PROFILE OF YELLOW, ORANGE AND PURPLE POLIGNANO CARROTS

**M. CEFOLA<sup>a</sup>, B. PACE<sup>a,\*</sup>, M. RENNA<sup>a,b</sup>, P. SANTAMARIA<sup>b</sup>, A. SIGNORE<sup>b</sup>  
and F. SERIO<sup>a</sup>**

<sup>a</sup>Institute of Sciences of Food Production, CNR - National Research Council of Italy  
Via G. Amendola 122/O, 70126 Bari, Italy

<sup>b</sup>Department of Agro Environmental and Territorial Sciences "Aldo Moro", University  
of Bari, Via Amendola 165/A, 70126 Bari, Italy

\*Corresponding author: Tel./Fax +39 080 5929310/9374,  
email: [bernardo.pace@ispa.cnr.it](mailto:bernardo.pace@ispa.cnr.it)

#### ABSTRACT

In the Puglia region, a multicolor landrace called the yellow-purple Polignano carrot has been cultivated since 1940 by local smallholder farmers and has been added to the Slow Food list of traditional products. Composition analyses of these carrots were carried out including carbohydrate assay, inorganic cations, nitrate content, and dry weight of each colour. Besides, antioxidant activity,  $\beta$ -carotene, total phenols and carotenoid content on the full carrots and on the cortex and inner core separated tissues were determined. The same analyses were performed on a commercial carrot cultivar.

On average, total glucose, fructose, and saccharose content was 22% lower in the yellow-purple Polignano carrot than in the commercial one. In addition, the highest contributor to the relative sweetness in the yellow-purple Polignano carrot was fructose (43.5%), which affects its well-known taste, as well as its glycemic index. As for the nutritional parameters, purple carrots showed the highest content in antioxidant activity, total phenols, carotenoids and  $\beta$ -carotene, mainly detected in the cortex.

- Keywords: coloured carrots, antioxidant activity,  $\beta$ -carotene, carotenoids,  
sweetness -